

## Stereophonic fairing accessory

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### CROSS-REFERENCE TO RELATED APPLICATIONS

"Not Applicable"

### STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

"Not Applicable"

### REFERENCE TO SEQUENCE LISTING, A TABLE, OR A COMPUTER PROGRAM LISTING COMPACT DISC APPENDIX

"Not Applicable"

## Description

### BACKGROUND OF THE INVENTION

[0001] The field of the Invention relates generally to audio accessories which are adapted to be mounted to vehicles with handlebars, like bicycles.

[0002] Prior patented bicycle audio systems have not attempted to produce a sound quality that today's sophisticated consumers have come to expect. Previous bicycle audio systems especially, have not had "bass ports". Today many modern stereo systems have bass ports, these ports allows the release of deep resonance sound waves from the system's speaker enclosure - thus satisfying today's bass hungry audience.

[0002] The only two patents(at time of applying for this patent) that were found comparable to stereophonic fairing's capabilities or functions, regarding mountable bicycle audio accessories. were Pat. No. 4,754,901 to Villanueva , et al., displaying a main body for carrying audio equipment, a pair of speakers permanently mounted to the main body, and U.S. Pat. No# 5,222,752 to Hewitt displaying a fairing and utility assembly: Featuring a complete car audio source(amp and audio player combined into one unit) and rear storage and battery assembly.

[0003] Neither offered bass ports or a means of enhancing bass output, nor have they included a means of adjusting the angle of mounted accessory, thus no high-rise handlebar mounting adjustments are claimed, which also denotes no individual choice of accessory's mounting style, or "look" is possible. The stereophonic fairing accessory provides for these type of adjustments, and more so the invention provides a means thru a few alterations, the ability to utilize it's integrated audio configuration, or alternatively embody the use of a self contained portable audio source configuration

[0004] The stereophonic fairing accessory invention allows for another caveat, not previously claimed. The utilization of either an on-board power source, or an externally mounted power source

[0005] Finally: No bicycle audio accessory patents found claimed the control of audio source functions with a remote, more so, the unique intuitive thumb remote claimed for this stereophonic fairing accessory invention.

### SUMMARY OF THE INVENTION

[0006] The goal of creating stereophonic fairing accessory was to invent a mountable bicycle and like vehicle audio system, with sound performance rivaling and surpassing the best portable stereo "boom box" system. A bicycle and like vehicle audio system on par with small premium home shelf systems. Consumers should not have to "settle" for lesser sound quality when they leave their automobiles at home.

[0007] A fairing body that would mute any weight gains that the stereophonic fairing accessory would add to bicycle. In fact at speeds even with the added weight riders performance would best the performance of a rider without the added fairing on level and downhill terrain.

[0008] The current invention provides a stereo fairing with windshield, the windshield provides a degree of air deflection and allows the cyclist a greater view of the road directly in front of the vehicle, as it extends just above the inner fairing body's component frame door. The fairing mounts to the high-rise handlebars of a bicycle and like vehicles.

[0009] The stereophonic fairing accessory has two main components, fairing body and component frame - that when combined give speakers an enclosure and close ability of inner component frame - thus forming the whole fairing.

[0010] Angle slot tilt adjustment. means cyclist can have their high-rise style handlebars at riders most comfortable angle without altering the Stereophonic fairing accessory's aerodynamic performance (or merely to give fairing a personal style on bicycle). Handlebars lower neck mount portion become central axis of adjustment, accomplished by L-brackets and adjoining clamps which tighten at the handlebar lower mount area, angling of fairing is achieved via angled slots located thru component frames rearwardly protruding angle adjust panels - centrally located above L-bracket's clamp center of rotation - L-brackets tighten at each side thru angled slots in component frame adjust panels and to upwardly extending handlebar tubes. L-bracket's adjoining clamps fix the assembly rigidly to handlebars. L-brackets are slotted for varied handlebar width adjustment.

[0011] The clamps for L and I brackets will have inner rubber grips to prevent handlebar scratching and absorb minor vibrations and reduce shock to amp and like componentry.

[0012] An alternative audio source configuration is provided: instead of the standard integrated audio source, an audio configuration is claimed allowing fairing to utilize a self contained portable joggers type of stereo source by means of a Y-cable connection from headphone jack of portable player to amp, amplifying player's audio headphone signal..

[0013] Design incorporates bass resonance sub-space enhancement, of perceived sound output, achieved by nose wells and bass wave deflection under bass resonance panels. the fairing's rounded shape creates a corner at the inner nose, this corner produces a "sub-space" this sub-space acts as a resonance well - sound reverberations creates a high bass wave which channels out rearwardly directed bass ports. True stereo separation is achieved by body of componentry frame and a center panel divider at fairing body's inner nose, thus fully separating left and right stereo sound output.

[0014]        Accessory is configureable to receive DC electrical power from either on-board power or the mounting of a DC external power source, either will supply power to all electrical devices

[0015]        Stereophonic fairing accessory as embodied, is not claimed to be water proof, as such it could include a fitted UV and thermal protective plastic cover with elastic rim for tight fit(not claimed or shown), that bears the manufacturers logo. At the manufacturers descretion a weather proof model could be made, utilizing the same general embodiment of fairing's main design, but rubber and foam liners are incorporatated with fairing body and door(s) - also instead of the speakers mounted as is, a thin lite film intergrated with speakers grill could filtrate water droplets away from speakers or the speaker cone, woofer and tweeter could be designed as such to be water proof, this waterproof version could be called a "SPORT" or "BEACH" mode. Water proofing does not change inventions primary embodiment and is within related manufacturers technological field of the art.

0016.        Consequently the Stereophonic fairing accessory provides not only the enjoyment of music - but has adjustable angle mount positioning for consistent maximum aerodynamic performance. offsetting the added weight of fairing, when cycling to speed, giving the cyclist lessor air resistance and greater speed potential maximums. Exercise and fun are made symbiotic. And it looks kool!

[0017]        Two methods of manufacture are observed below;

[0018]        1. "Mass Production": Stereophonic fairing accessory is ideally mass produced, by manufacturer of like accessories. Manufacturer produces fairing shell by blow molding/vacuum bagging/injection molding or cast light metal forming. Manufacturer produces component frame as one piece, or combined injection molded individual parts. It would be ideal to produce component frame and L & I brackets of cast polished aluminum, because aluminum is a light and rust proof metal. I-brackets may also be molded in plastic as part of

component frame, even l-bracket clamp mechanism can be molded as part of frame. This would save tooling costs, said clamps for L-brackets are also preferably injection molded. Because the weight of a durable plastic - like ABS multiplies rapidly, it should be observed that component frame has large holes to reduce weight and allow air/sound flow - these holes will also reduce the volume of casting material required - thus also reducing cost per unit. Manufacturer mounts all electrical/audio componentry. Entire stereophonic fairing accessory is sold pre-assembled.

[0019] 2. "Master Kit": Stereophonic fairing accessory is produced in a model style kit, by manufacturer. Much like "Mass Production" above except major portions, parts and panels are left on the injection molding tree when possible - giving the purchaser the joy of doing it themselves and equally important saving the manufacturer thousands, to potential millions & billions of dollars in production assembly costs. Actual fabrication is similar to above except purchaser will assemble major components and panels by snap, snap/glue and or fasteners etc. Only electrical components will be as complete in wiring and connection as possible to afford purchaser as safe and easy an assembly as possible.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0020] Other objects and caveats of the invention will become more obvious from the following description and accompanying drawings.

[0021] FIG. 1 is a front view of the stereophonic fairing accessory;

[0022] FIG. 2 is a side view of the mounted stereophonic fairing accessory;

[0023] FIG. 3 is a back(rider) view of stereophonic fairing accessory;

[0024] FIG. 4 is a back(rider) view of an alternative embodiment of stereophonic fairng accessory;

[0025] FIG. 5 is a perspective view of portable audio media inserting into stereophonic fairng accessory;

[0026] FIG. 6 is a perspective view of a battery cell inserting into stereophonic fairng accessory;

[0027] FIG. 7 is a perspective view of an alternative embodiment of stereophonic fairng accessory revealing a portable player as audio source;

[0028] FIG. 8 is a perspective view of a battery cell inserting into an alternative embodiment of stereophonic fairng accessory;

[0029] FIG. 9 is a partial detailed view of integrated media door;

[0030] FIG. 10 is a partial exploded, perspective view of brackets and clamps detail;

[0031] FIG. 11 is a perspective view of invention mounted to handlebars;

[0032] FIG. 12 is a perspective view of invention as depicted in 11 with handlebars in an alternative angle position;

[0033] FIG. 13 is a back(rider) view of invention mounted to narrow "SPORTSTER" style high-rise handlebars;

[0034] FIG. 14 is a back(rider) view of invention mounted to wider "APE HANGER" style high-rise handlebars;

[0035] FIG. 15 is an exploded perspective, back view of stereophonic fairng accessory's alternative embodiment;

- [0036] FIG. 16 is an exploded perspective, front view of stereophonic fairing accessory's alternative embodiment;
- [0037] FIG. 17 is a cross sectional, side view of standard and alternative embodiments of invention's component frame's inner details;
- [0038] FIG. 18 is cross sectional, side view of stereophonic fairing's body, bass enhancement details;
- [0039] FIG. 19 is cross sectional, top view of stereophonic fairing's body, bass enhancement details;
- [0040] FIG. 20 is a perspective view of stereophonic fairing accessory and options, mounted to a partial bicycle;
- [0041] FIG. 21 is a perspective, partially exploded view of intuitive thumb remote;
- [0042] FIG. 22 is a perspective, exploded view of intuitive thumb remote mounting to a partial handlebar;
- [0043] FIG. 23 is a perspective view of intuitive thumb remote mounted to a partial handlebar;
- [0044] FIG. 24 is a close up layout of intuitive thumb remote's head vector function label;
- [0045] FIG. 24 is a side view of intuitive thumb remote;
- [0046] FIG. 26 is a side view of intuitive thumb remote's head in an alternative "volume up" position;



## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0047] First it should be made clear that references 1 and 2 in any of the FIGS shall mean; 1 to mean the standard audio source embodiment of invention; and 2 to mean the alternative audio source embodiment of the invention. Both in all cases shall be powered, entail bass enhancement and shall mount, angle adjust, fit widths to handlebars 109 by the same means in either embodiment. Using FIGS. 11-14 for example, applies to both embodiments of invention.

[0048] As depicted in FIGS. 1 thru 26, the invention relates to an audio accessory created to mount vehicles with high-rise handlebars, like bicycles. The invention is ideally constructed of an injection molded plastic and or cast and formed aluminum alloys, Windshield 7 is preferably die cut from scooter grade, translucent plastic. Observing FIGS. 2-4 and 10-14 it will become apparent as to the premise by which the stereophonic fairing accessory 1 and 2 mounts to bicycle 122. A better understanding is made by looking first at FIG. 2 and then 10-14, stereophonic fairing accessory 1 and 2, mounts to handlebars 109 by means of left and right L-brackets 46, 47, that fasten to component frame 23, and it's rearwardly protruding side panels 30 and 31 angled slots 32, by means of fasteners 52 shown in FIG. 10 and I-brackets 48, 49 shown in FIGS 3-4 and 10-14. with adjoining conduit clamps 55, that clamps and tightens by fasteners 59 shown in FIG. 10, to handlebars 109, extension tubes 111 and handlebar's lower mount portion 110 shown in FIGS 11-14, 17.

[0049] Angle adjustment is shown in FIGS. 11 and 12, in FIG. 11 shows handlebars 109 fully verticle, FIG. 12 shows handlebars 109 in an alternative angled position. Notice: component frame 23 rearwardly protruding left 30 and right 31 side panels, has angled slots 32, that are centrally located above I-bracket's 48, 49 adjoining conduit clamps 55 that are clamped to handlebars 109, lower mount portion 110, allowing high-rise extension tubes 111 to be tilt adjusted by left 46 and right 47 L-brackets and their adjoining conduit clamps 55, bringing handgrips 113

closer to vehicle operator.

[0050] Varied style high-rise handlebars 109 width adjust mounting is shown in FIGS. 13 and 14. In FIG. 13 handlebars 109 is a "SPORTSTER" style of high-rise handlebar, and in FIG. 14 handlebars 109 is a wider "APE HANGER" style of high-rise handlebar. Notice that in FIG. 13, L-bracket's left 46 and right 47 width adjust slots 53 as shown closely in FIG. 10, allows adjoining conduit clamp 55, to mount to the further apart extension tubes 111, of wider "APE HANGER" handlebars 109. Conduit clamp 55 detail in FIG. 10 shows the resin encapsulated "potted" mount bolt 56 of conduit clamp 55 that matches and seats at clamp base 57, clamp grips 60 will be affixed by scratching inner clamp 55 (smooth inner clamp 55 may detriment affixing grips 60), glue or heat will bond the grips 60 that prevent handlebar 109 scratching when mounting invention and reduce minor vibrations to amp 85 and its related components.

[0051] The standard integrated audio embodiment of invention as shown in FIGS 3, 5, 6 and 9, entails the incorporation of an integrated media door 14, that is hinged to the component frame 23 door 11, that is hinged to inner fairing body 4, just below windshield 7. In FIG. 5 it is shown that by opening 14 allows the insertion of portable pre-recorded media 121, Turning to FIG. 6 opening component frame door 11, opens 14 also which must be closed so that 11 may open adequately to allow access to component frame 23, second level 94, as seen in FIG. 17, that is a small glove compartment and configurable for in-fairing power: alternatively in FIG. 6 allows the installation of battery holders 95, and required DC (direct current) power cell(s) 96, shown inserting into holders 95. Conversely a single large cell (not shown) may also be mounted to 94.

[0052] The standard integrated audio embodiment of invention as shown in FIGS 3, 5, 6 and 9, entails the incorporation of an integrated media door 14, the door's controls and digital display 62, are elaborated in FIG. 9, illustrating its various indicators are: miles per hour 73, miles traveled 74, calendar 75, time 76, power 77, volume level 78, base level

79 , surround 80, track/station 81, lights 82 and alarm state 104. The control buttons of the integrated media door 14, are: volume on/off knob 63, forward track/station etc. 64, backward track/station etc. 65, mode button 67((selects base, esp, surround and alarm) the selection made is adjusted with the volume knob 63 and or forward 64, backwrdr 65 buttons), clock/calander button 68, cd player on/off 69, radio-fm/am on/off, lights on/off 71, miles per hour/miles traveled 72. Finally regarding the integrated media door; an analogy to comprehend it's creation is simply the taking of a current multi-function, portable, self contained joggers stereo and placing the entire unit on a hinge, thus clearly the manufacturing technology required, is well within the field of the art.

[0053] The alternative portable self contained audio embodiment of invention 2 as detailed in FIGS. 4, 7- 9 and 15-17. Notice in FIG. 4 component frame 23, door 11 has no control buttons etc. Opening door 11, grants access to portable player 100, that is mounted to a third hinged level 97 shown closely in FIG. 17, player 100 sends audio signals to amp 85 shown in FIG, 17, by way of a headphone plug and cord 101 with phono plugs 88. In FIGS. 16 and 17 is shown how player 100 mounts and is removed from hinged level 97, player 100 belt clip 102, fastens to hinged level 97, by fasteners 103, player 100 is removed from hinged level 97, by pushing lock hook 105 this allows lwvel to be lifted open by it's hing 99,, then finger(s) can reach thru large removeal access hole 98 shown in FIG. 15, from bottom of hinged level 97 to un-clasp player 100, from fastened belt clip 102.

[0054] Power is supplied to amp 85 shown in FIG. 17 and optional devices shown in FIG. 20; head light 118 mounted to front fender 126, and tail light mounted to rear fender 127 and horn/alarm siren 120(refer to FIGS 2 and 20 for mounting locations) by one of two means: in-fairng battery holders 95 and required cells 96 shown in FIG. 17, alternatively from a typical electric bicycle 122 battery & mount kit 115 shown in FIGS. 2, 20 mounted to frame seatpost tube 123.

[0055] By no means all inclusive: FIG. 17 shows a basic means of electrical power and audio signal distribution. Notice: all ghosted parts are alternative embodiments - selectively embodied when applicable, wires 93 lead to external battery 115 and or optional devices shown in FIGS. 2, 20, wires 93 connect to barrier strip(s) 92 that has multi terminal places which centrally distributes power, shown FIG. 17 is the removeable level 94 which is held and monted a distance from amp 85 atop 4 mount dowels 39 shown mounted on this level is the alternative in-fairing power battery holder(s) 95 and required cells 96 it's wires are shown connected to barrier strip(s) 92, see that wires from 92 lead to amp 85 power terminal 90 providing power to amp, wire 91, lwads to switches of integrated control door 14 shown in FIG. 9, or alternative embodiment 2 light switch 44 and amp power switch 45 shown in FIG. 4 to turn on/off selected device. Speakers receive boosted audio signals from amp 85 speaker terminal 89 wires. Amp 85 is perferably supplied with rubber shocks 86(grommets or O-rings) to protect amp from rough terrain riding. Amp 85 shown in use for simplicity is a mini car amp, but at manufacturer's descretion in place of this self contained amp 85 will likely be typical portable stereo type circuitry and circuit boards, barrier strips 92 will likely be replaced with a far more sophisticated electrical terminal inputs/outputs with external jacks(not shown) on component frame 23 that devices can plug into(not shown), all of these implied upgrades are within the related manufacturers technological field of the art.

[0056] A method of mounting windshield 7, to invention is shown in FIGS. 1, 3 windshield 7 mounts to inner body 4, by fastners 8, and is supported to inner fairing body 4 by large washers 9.

[0057] Assembling the main parts of invention as shown in FIG. 15 the component frame 23 attaches to inner fairing 4 left and right mount framer 20, 21 by component frame 23 and its left and right speaker panels 33, 34 mate with the mount framers 20, 21, then fastners 22 tightens the assembly. Observe vents 5 at bottom of outer fairing 3 match location of holes 25 in component frame 23 bottom amp level 28

so that when unit is assembled air flow circulates thru bottom of outer fairing 3 and holes 25, providing required heat reduction to amp 85 shown in FIG. 17 cooling affect is thus increased as cyclist riding speeds increase.

[0058] Stereophonic sound separation method is shown in FIGS. 15, 16 and 19, the inner fairing 4 has a bulkhead panel 15 that mates with component frame 23 front panel 24 shown in FIG 15, lips 19 seals sound in by fitting snugly onto component frame 23, side panels 30, 31, FIG. 19 shows a nose divider 15, at front of inner fairing 4, thus component frame 23 body and nose divider 15 fully separates inner fairing body, 4 sound.

[0059] Base resonance enhancement is shown in FIG/S. 18, 19, sound waves B19 from rear of speaker 40 is directed to front of component frame 23, where there is corner pockets called a resonance wells B17, B18 for left and right speakers 30, 31, the resonance wells B17, B18 is where bass enhancement occurs, then enhanced sound reverberations B20 base waves B21 flows under left and right base resonance dividers 35, 36 shown in FIG. 15 and out left and right base ports 17, 18 shown also in FIGS. 3-8.

[0060] Standard embodiment 1 of invention's basic audio and accessory functions are alternatively controlled by an optional intuitive thumb remote R1 shown in FIGS. 20-26, remote R1 has a main body R3, multi pivotal thumb stick R2 to control audio functions, a horn button R6 at back of body R3, a light button R7 at bottom of body R3, affixed to main body R3 is a tube clamp R4 (notice that tube clamp R3 is very narrow, preferably about .375" or less, allowing space for mirrors, hand brakes etc. on handlebars), clamp R3 tightens over tube by means of fastener R5 shown in FIG. 21, handgrip 113, is removed from handlebar 109 to mount remote R1 to handlebar 109.

[0061] Control of intuitive thumb remote R1 audio functions is achieved by pushing thumb joystick head R2 in one of eight directional vectors (like today's video game system joy sticks), the indication function label R11 detailed in FIG. 24 shows eight vector direction functions that are: push stick south = volume down R13, push stick north = volume up R12 (FIG. 26 shows an example of thumb stick R2 in a volume up position), push stick northeast and northwest = on-play/pause, push stick east = track/station forward R14, push stick west = track/station backward R15, push stick southeast and southwest = stop/off R17 - pushing once enables the first function / pushing twice (within 3 seconds) enables the second function (this does not apply to track/station which is selected by use of the integrated media door 14, choosing radio button 70 or cd button 69 shown in FIG. 9). Without flinching, vehicle operator by means of the intuitive thumb remote R1 can keep his/hers eyes on the road, while safely turning up the volume or searching for a desired track/station.